

ABSTRACT

A measurement system and method are presented for use for non-invasive measurements in a human body. Acoustic radiation is applied to a certain illuminated region in the body, with at least two different conditions of the applied radiation achievable by varying at least one characteristic of the acoustic radiation. Light scattered from the body part is detected, and measured data indicative of detected photons tagged and untagged by the acoustic radiation is generated. The measured data is analyzed to extract therefrom a data portion corresponding to the tagged photons and being therefore associated with a light response of said certain region, thereby enabling determination of tissue properties of said certain region based on a relation between the measured data portions corresponding to the at least two different operating conditions.